

## **MAJOR FINDINGS**

**Finding MF1:** The ARB PQAQ does not meet the requirements in 40 CFR Part 58, Appendix A, Section 3.1 for its dependent Districts.

**Finding MF2:** There is no central organization that ensures Districts are aware of and follow changes to the QA Manual and related SOPs.

**Finding MF3:** The ARB PQAQ has a corrective action process in its QA Manual, but it is not being applied outside the Quality Management Branch (QMB) performance audit program.

**Finding MF4:** Positions that are vacant for over 6 months are routinely eliminated.

**Finding MF5:** The ARB collects environmental data for EPA decision making that is funded in whole or part by EPA but is not subject to the requirements of the ARB and EPA quality assurance programs.

**Finding MF6:** Districts that are part of the ARB PQAQ collect data for EPA decision making and/or funded by EPA that is not quality assured by the ARB PQAQ.

**Finding MF7:** The ARB needs to upgrade their QA Manual to meet QMP and QAPP requirements.

**Finding MF8:** Data invalidation is not done using a consistent approach. This could result in the appearance that data is being selectively invalidated.

**Finding MF9:** EPA commends ARB MLD for producing Quality Assessment Reports and recommends that the ARB PQAQ develop a mechanism to use these reports to make specific corrective actions or other quality improvements.

## **NETWORK MANAGEMENT**

**Finding NM1:** The ARB annual network plan includes not just active monitoring sites but any monitoring site that collected air pollution data in the State of California since the early 1970's.

**Finding NM2:** The Stockton MSA in the San Joaquin Valley Air Basin does not meet the minimum SLAMS monitoring requirements for PM<sub>2.5</sub>.

**Finding NM3:** The Modesto MSA in the San Joaquin Valley Air Basin does not meet the minimum SLAMS monitoring requirements for PM<sub>2.5</sub>.

**Finding NM4:** The Red Bluff MSA in the Sacramento Valley Air Basin does not meet the minimum SLAMS monitoring requirements for ozone.

**Finding NM5:** The Visalia-Porterville MSA in the San Joaquin Valley Air Basin does not meet the minimum SLAMS monitoring requirements for ozone.

**Finding NM6:** Some information in the ARB State and Local Air Monitoring Network Plan, dated June 2007, does not agree with information in the EPA AQS database or with local district Annual Network Plans. The specific examples noted below may or may not constitute the actual total number of inconsistencies in the 2007 plan.

**Finding NM7:** The ARB 2007 Network Plan is not complete with respect to GBUAPCD sites, monitoring objectives or monitoring scales.

## **OPERATIONS**

### **General Findings on ARB Operations**

**Finding AQSB1:** Field operators do not always document shipping information on their sample report/tracking sheets. See also Lab Finding #IL7

**Finding AQSB2:** Some ARB MLD monitoring SOPs are outdated and/or incomplete.

**Finding AQSB3:** White out was noted on an MLD air monitoring form.

### **Instrument Calibration Program**

**Finding AQSB4:** ARB MLD does not calibrate monitoring equipment at all PQAO sites.

**Finding AQSB5:** Second level review of calibration records and calculations is not routinely done.

**Finding AQSB6:** The lowest ozone calibration point is at a concentration that is above the 8 hour standard.

**Finding AQSB7:** The calibration technician noted that only 2 gas phase titration points are used to verify the NO<sub>2</sub> calibration.

**Finding AQSB8:** Maintenance and performance verification of zero air scrubbers used for calibrations is not documented.

### **Special Purpose Monitoring Section**

**Finding AQSB9:** The Special Purpose Monitoring Section should keep EPA informed of its monitoring projects.

## **ARB Field Operation Findings**

**Finding AQSB9:** The trees to the east of the Fresno 1st Street station building are about 15 meters from the inlet probe and PM manual instruments.

**Finding AQSB10:** At the Stockton-Hazelton monitoring station, a large tree to the south of the trailer is acting as an obstruction for the gaseous pollutant sample train inlet as well as to the PM<sub>10</sub> and PM<sub>2.5</sub> samplers. This site does not meet the probe siting criteria in 40 CFR 58, Appendix E.

**Finding AQSB11:** The palm tree northwest of the Visalia monitoring station is within 10 meters of the inlet probe and may act as an obstruction.

## **SJVAPCD Field Operation Findings**

**Finding SJV1:** The San Joaquin Valley APCD does not have District specific SOPs addressing the operation and maintenance of its air pollution monitoring network.

**Finding SJV2:** The SJVAPCD field operators do not maintain zero and span or precision check control charts.

**Finding SJV3:** Station and instrument logbooks are not reviewed by the Supervising Air Quality Instrument Technician.

**Finding SJV4:** There is no current, consistent procedure in place for archiving all station records.

**Finding SJV5:** At the Bakersfield – Golden State Highway site, the area surrounding the trailer which houses the monitoring equipment needs to be stabilized.

## **NSAQMD Field Operation Findings**

**Finding NS1:** The NSAQMD field technicians have instrument manuals but not SOPs. The ARB SOPs are only kept at the District's main office in Grass Valley and are not at field stations. Additionally, the District operations deviate from the ARB SOPs but do not document those deviations.

**Finding NS2:** The NSAQMD record-keeping procedures need to be more rigorous.

**Finding NS3:** The NSAQMD experiences significant ozone data loss due to a lack of spare parts.

**Finding NS4:** ARB performed audits of the NSAQMD PM instruments do not conform to CFR requirements. Additionally, the NSAQMD stated that the ARB does not perform through the probe audits of NSAQMD ozone monitors.

**Finding NS5:** There is no feedback from the ARB on outcome of PM filters. See also Laboratory Finding # IL8

**Finding NS6:** The most recent ARB site survey report was not accurate.

**Finding NS7:** The NSAQMD does not utilize strip chart backup for its ozone instruments.

**Finding NS8:** There are trees within 20 m of monitors.

### **GBUAPCD Field Operation Findings**

**Finding GB1:** Great Basin operates an independent monitoring, laboratory and QA program from that of ARB.

**Finding GB2:** GBUAPCD's Training program (a QA function) is independent and separate from that of ARB.

**Finding GB3:** Logbooks were not all up to date and signed by the GBUAPCD operators at all stations.

### **LABORATORY OPERATIONS**

#### **Inorganic Laboratory**

**Finding IL1:** The MLD weigh sessions have been automated in a manner that reduces the possibility of operator error.

**Finding IL2:** Mass determination of PM<sub>10</sub> filters should include blank controls.

**Finding IL3:** Temperature and humidity measurements in the weigh rooms are only logged on a paper chart and are not formally analyzed to determine compliance with regulatory criteria.

**Finding IL4:** The PM<sub>10</sub> laboratory only recently started a logbook to track verification of "working" mass standards.

**Finding IL5:** Several additional improvements could be made to the PM<sub>2.5</sub> mass analysis process.

**Finding IL6:** The PM<sub>10</sub> and PM<sub>2.5</sub> documentation and archived filters were well organized and easily tracked.

**Finding IL7:** Field operators do not always document shipping information on their sample report/tracking sheets. See also Operations Finding #AQSB1.

**Finding IL8:** A local District stated that there was lack of sufficient feedback from the ARB on outcome of PM filters. See also Operations Finding #NS8.

Organic Laboratory

MLD 022

**Finding OL1:** A second source quality control standard is not being analyzed as required by the method. Analysis of a second standard is being performed but the standard is not prepared from a second source and is prepared as a dilution of the same standard solution that is used to prepare the working calibration standards.

**Finding OL2:** Audit samples are not being analyzed.

**Finding OL3:** Field blanks are not being analyzed. Sample results are being corrected for background contamination based on an average background contamination of 0.3 µg/cartridge determined from a field blank study performed by MLD 15 years ago. It is the understanding of the audit team that field blanks have not been deployed for 15 years.

**Finding OL4:** The laboratory is not using an internal standard method of analysis as described by the method. The laboratory is currently using the external standard method of standardization.

**Finding OL5:** Secondary review of instrument logbooks is not being documented.

MLD 039

**Finding OL6:** Audit samples are not being analyzed. The audit team was told that the ARB QA Department suggested the department initiate its own system of audit sample analysis.

**Finding OL7:** Secondary review of instrument logbooks is not being documented.

**Finding OL8:** It is noted that the laboratory is looking into the purchase of an additional IC.

**Finding OL9:** Secondary review of instrument logbooks is not being documented.

MLD 058

**Finding OL10:** Duplicate samples are being analyzed and presented as tabulated results in quarterly QA reports but control charting is only occasionally performed.

**Finding OL11:** The GC/MS is not vented to outside the facility.

**Finding OL12:** Secondary review of instrument logbooks is not being documented.

MLD 066

**Finding OL13:** Audit samples are not currently being analyzed.

**Finding OL14:** GC/MS Saturn D is a new instrument which was brought on-line in April, 2007 that is being used to generated data but an MDL study has not been performed and documented.

**Finding OL15:** Although the MLD 066 method is based on the TO-15 method which describes and internal standard method of calibration, the laboratory is using an external method of standardization and internal standards are not being used.

**Finding OL16:** Secondary review of instrument logbooks is not being documented.

**Finding OL17:** Mass calibration is being achieved with perfluorotributylamine (FC -43) but confirmation of that tuning abundance criteria have been met is not being verified through the analysis of 1-bromo-4fluorobenzene (BFB). It is the understanding of the audit team that tentatively identified compounds are not routinely being reported with this method.

**Finding OL18:** The GC/MS is not vented to outside the facility.

#### Canister Cleaning & Certification

**Finding OL19:** Laboratory staff stated a random pull of canisters for certification testing is performed. The laboratory does not take into consideration which canisters had the highest concentrations of contaminants prior to cleaning when deciding which canister in each batch to test for cleanliness certification.

**Finding OL20:** Canisters are not vented in hoods and are vented to ambient air.

**Finding OL21:** The laboratory has not established a retention time for canisters after they have been certified. The laboratory relies on the canister pressure gauge reading as an indication the canisters have not lost vacuum.

#### DATA MANAGEMENT

**Finding DM1:** The data validation and review/verification procedures for the Air Quality Surveillance Branch are not formally published in a control-copied SOP.

**Finding DM2:** The data validation and data review/verification procedures for the Northern Laboratory Branch are not formally published in control-copied SOPs.

**Finding DM3:** The data validation and data review/verification procedures for the Air Quality Data Section are not formally published in a control-copied SOP.

**Finding DM4:** EPA was not given access to special projects data management activities to review. It is not clear that QA procedures apply to all projects receiving federal funding.

**Finding DM5:** The AQDS does not ensure that local District data is validated prior to upload to AQS.

**Finding DM6:** Ambient monitoring data submitted to the AQS database by the ARB PQAQ is not being annually certified.

**Finding DM7:** Staff do not have free access to surface communication concerns related to quality assurance to maximize organization efficiencies.

**Finding DM8:** Valid concentration data for the Yreka PM<sub>2.5</sub> monitor (AQS# 06-093-2001) have not been submitted to the AQS database since December 2006.

**Finding DM9:** The AQS database identifies the Siskiyou County APCD as its own PQAQ.

**Finding DM10:** The Lakeport PM<sub>10</sub> site has not reported PM<sub>10</sub> data correctly to AQS since March 2001.

## **QUALITY ASSURANCE**

**Finding QM1:** The QMB does not have the authority in the organization to provide direction and recommendations to the data collection, production, and verification programs.

**Finding QM2:** Training, while in place for the ARB MLD, does not necessarily extend to all staff and the ARB PQAQ Districts. See also Finding MF1.

**Finding QM3:** Some Districts do not have a central, independent, dedicated quality assurance manager/officer responsible for communicating and ensuring that quality assurance activities are carried out in field operations and information management.

### **QA Section Findings**

**Finding QA1:** The QAS does not assure that sites that fail performance audits are re-tested after a corrective action is implemented.

**Finding QA2:** The QAS has experienced a high staff turnover in recent years, which has impacted the level of institutional knowledge in the section and impacted their ability to perform audits.

**Finding QA3:** System audits of local Districts by QAS and the Stationary Source Division are only conducted by request or on an as needed basis.

**Finding QA4:** ARB MLD does not perform routine audits of data quality.

**Finding QA5:** Internal audits are not conducted on ARB-MLD's and Districts data management, reduction and review process.

**Finding QA6:** The ARB's MLD does not routinely conduct monthly (day-to-day) checks of all the precision and accuracy of data being uploaded by the local Districts to the AQS database.

**Finding QA7:** The ARB Reporting Organization (RO) cannot access the AQS accounts of Districts that are part of the ARB PQAO, but are their own RO for the purposes of uploading data to the EPA AQS database.

### **Standards Laboratory**

**Finding SL1:** There is no corrective action procedure in place to notify Quality Assurance or Field Audit staff of failure i.e., potential rejection of data from period prior to calibration check taking place when transfer and flow standards fail calibration.

**Finding SL2:** The thermometer in the Standards Laboratory needs to be verified with another NIST traceable standard.

**Finding SL3:** There is insufficient documentation in logbook entries in the ozone Standards Laboratory.

**Finding SL4:** Calibration of the primary flow standards brought in by ARB staff or District does not always occur on an annual basis. There is no tracking by the Standard Laboratory to ensure District or ARB flow standards are annually recertified.

**Finding SL5:** Manometers were not calibrated separately from transfer standards.

**Finding SL6:** The control charts for Hi Vol flow standard was above two standard deviations from approximately September 2005 and reached three standard deviation at approximately January 2006, before corrective measures were taken to bring it back into control.

**Finding SL7:** The Standards Lab's High Volume Orifice Calibration Work Sheet is not always filled out completely. Similarly with logbooks, the person performing calibrations for the ozone standards is not recorded.

**Finding SL8:** Calibration records from DH Instruments, Inc. are not always opened upon receipt.

**Finding SL9:** The Standard Laboratory does not maintain calibration verification records it performed on instruments recalibrated by DH Instruments.



**Finding SL10:** There is no backup to the stand alone DBASE database server that maintains records from results of calibrations performed of District and ARB-MLD sites.

**Finding SL11:** Hard copy records of changes made to DBASE electronic data (see comment 10 above) is not easily accessible.

**Finding OPA1:** OPA's QA audit role in the organization is underutilized and could be more effective.

**Finding OPA2:** Special Purpose Monitoring (SPM) projects are not implemented under a Quality Assurance Project Plan (QAPP), but a protocol developed specifically for the SPM.